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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/730,103 | 12/05/2000 | Paul R. Iverson | 10230US01 | 7488 |

7590 07/13/2004

Attention: Eric D. Levinson
Imation Corp.
Legal Affairs
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St. Paul, MN 55164-0898

| EXAMINER |
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CHU, KIM KWOK

| ART UNIT | PAPER NUMBER |
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2653

DATE MAILED: 07/13/2004

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/730,103

Applicant(s)

IVERSON ET AL.

Examiner

Kim-Kwok CHU

Art Unit

2653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

Claim Objections

1. Claims 7 and 12 are objected to because of the following informalities:

(a) in claim 7, line 1, the term "the transducer and the lead" should be changed to --the transducer and a current tip/lead--; and

(b) in claim 12, last line, the term "film plane" should be changed to --film plane.--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless: (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United State.

3. Claims 1, 2, 4, 7, 8 and 9 are rejected under 35 U.S.C. § 102(b) as being anticipated by Wickramasinghe et al. (U.S. Patent 4,747,698).

Wickramasinghe teaches a data playback system having all of the elements and means as recited in claims 1, 2, 4, 7, 8 and 9. For example, Wickramasinghe teaches the following:

(a) as in claim 1, the non-magnetic transducer 26 (Fig. 1);

(b) as in claim 1, a temperature sensitive resistor 52 (Fig. 2; column 5, lines 13 and 14);

(c) as in claim 1, a bias current path including the temperature sensitive resistor 52 (Fig. 2; source 54 supplies the bias current; column 7, lines 40 and 41);

(d) as in claim 2, in which the temperature sensitive resistor 52 comprises a thermistor (Fig. 2; column 5, lines 13 and 14);

(e) as in claim 4, the temperature sensitive resistor 52 comprises a resistance temperature detector (Fig. 2; column 5, lines 13 and 14);

(f) as in claim 7, the transducer and its leads/tips 52 are the same material (Fig. 2; both are made of thermal sensitive material 52);

(g) as in claim 8, the transducer is generally V-shaped (Fig. 2); and

(h) as in claim 9, a heating element 34 in close proximity to the temperature sensitive resistor (Fig. 1; column 7, lines 40-46).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3, 5, 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wickramasinghe et al. (U.S. Patent 4,747,689) in view of Kawaguchi et al. (U.S. Patent 4,952,902).

Wickramasinghe teaches a temperature sensitive transducer very similar to that of the instant invention. However, Wickramasinghe does not teach the following:

(a) as in claim 3, the thermistor comprises a material selected from the group consisting essentially of boron-doped diamond-like carbon;

(b) as in claim 5, the resistance temperature detector comprises a material selected from the group consisting essentially of and platinum;

(c) as in claim 6, the transducer is a thin film structure; and

(d) as in claim 10, a protective coating layer on the bottom of the transducer.

Kawaguchi teaches a thermal to electric transducer made of the following:

(a) the thermistor comprises a material selected from the group consisting essentially of boron-doped diamond-like carbon (Figs. 2 and 3; column 4, lines 55-58);

(b) the resistance temperature detector comprises a material selected from the group consisting essentially of and platinum (Figs. 2 and 3; column 11, lines 39-48, column 13, lines, 3-7);

(c) the transducer is a thin film structure (Figs. 2 and 3; column 2, lines 5-14); and

(d) a protective coating layer 8 on the bottom of the transducer (Fig. 3; column 17, lines 25 and 26).

Although Wickramasinghe does not disclose which material is used to make his temperature sensitive transducer, for the benefit of maintaining the stability of operation in a high temperature environment, it would have been obvious to one of ordinary skill in the art to use the material as taught by Kawaguchi to make a thin-film thermistor such as Wickramasinghe, because the boron-doped carbon material is stable at a range of elevated high temperature and the platinum is a well known good conductor as an electrode layer.

Furthermore, the protective layer prevents the tip oxidized by the air.

6. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wickramasinghe et al. (U.S. Patent 4,747,689) in view of Erskine et al. (U.S. Patent 5,243,858).

Wickramasinghe teaches a temperature sensitive transducer very similar to that of the instant invention. However, Wickramasinghe does not teach the following:

- (a) as in claim 11, the transducer defines a film plane, and the bias current path lies parallel to the film plane; and

- (b) as in claim 12, the transducer defines a film plane, and the bias current path lies perpendicular to the film plane.

Erskine teaches the following:

- (a) the transducer 28 defines a film plane 12, and the bias current path 54 lies parallel to the film plane 12 (Fig. 1); and

- (b) as in claim 12, the transducer defines a film plane 12, and the bias current path 54 lies perpendicular to the film plane (Fig. 1; current path lies perpendicular to the horizontally laid film plane 12).

Since an integrated circuit such as a thermistor has its sensor and current path manufactured on a thin-film, it would have been obvious to one of ordinary skill in the art to set

the current path and the thermistor on the same plane, because the circuitry must be horizontally laid out as a thin-film structure.

On the other hand, the current source drives the horizontally laid thermistor is located above the thermistor's current input pad, therefore, it would have been obvious to one of ordinary skill in the art to set Wickramasinghe's current path vertical to the thermistor such as Erskine's, because the conductive circuit leading the current to the thermistor is vertically positioned.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Abraham et al. (5,753,803) is pertinent because Abraham teaches a temperature sensing probe.

Alvis et al. (5,713,667) is pertinent because Alvis teaches a temperature sensing probe.

Fukimoto et al. (5,329,512) is pertinent because Fukimoto teaches a temperature sensing probe.

Nakahata et al. (5,081,438) is pertinent because Nakahata teaches a temperature sensing probe.

Sumner et al. (4,966,037) is pertinent because Sumner teaches a temperature sensing probe.

Fujimori et al. (4,806,900) is pertinent because Fujimori teaches a temperature sensing probe.

Nagai et al. (4,359,372) is pertinent because Nagai teaches a carbide thin film thermistor.

8. Any response to this action should be mailed to:
Commissioner of Patents and Trademarks Washington, D.C. 20231
Or faxed to:

(703) 872-9306 (for formal communications intended for
entry. Or:

(703) 746-6909, (for informal or draft communications,
please label "PROPOSED" or "DRAFT")


Hand-delivered responses should be brought to Crystal Park
II, 2021 Crystal Drive, Arlington. VA., Sixth Floor
(Receptionist).

Any inquiry of a general nature or relating to the status
of this application should be directed to the Group
receptionist whose telephone number is (703) 305-4700.

Any inquiry concerning this communication or earlier
communications from the examiner should be directed to Kim CHU
whose telephone number is (703) 305-3032 between 9:30 am to
6:00 pm, Monday to Friday.

lc 6/30/04
Kim-Kwok CHU
Examiner AU2653
June 30, 2004

(703) 305-3032


WILLIAM KORZUCH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600